

## Cup to Limit Swallowing Volume for Therapy and Evaluation

Client: Laurie A. Matzdorf, Speech Language Pathologist

Team members: Gabe Donatell, Christine Koranda, Mike Kosir, David Meister, Joel Rotroff, Brian Shoet, Bryan Staerkel, and Rebecca Vanderpool

Date: 12/06/01 - 12/14/01

Problem Statement: Develop a cup or bottle that limits and has the ability to vary the swallowing/ bolus size for evaluation and therapy purposes. This device will be used to treat certain swallowing disorders in laboratory and home settings.

Restatement of Team Goals:

- 1) Meet with ME prof. Tim Osswald Wednesday afternoon at 4pm. - discuss feasibility and cost of our proposed design.
- 2) Design protocols for testing the accuracy of some bottles from US Plastics.
- 3) Test the accuracy and perhaps other criteria at Mark Nicosia's lab at UW Hospital.
- 4) Begin writing final paper and poster for the presentation next week Friday.

Summary of Accomplishments:

This last Wednesday we met with plastics expert Tim Osswald. He told us our design is feasible, the materials our example bottles were made out of, what materials we would use for our bottle, and the cost of actually manufacturing our design. (~ \$20,000 for the injection mold die, ~ 50 cents per pound of plastic). On Friday we decided on our proposed design and constructed a prototype using plastic materials from US Plastics bottles, our client, and our advisor. We then broke down who would work on what part of the final paper and group poster. From Friday to Wednesday group members worked on the paper. Based on the paper, the group poster is currently being constructed. We also attempted to contact our client to inform her of the time and date of our poster presentation.

Statement of Team Goals:

- 1) Finish final paper
- 2) Finish group poster
- 3) Inform client of poster presentation
- 4) Efficiently and professionally present group poster

Project Schedule:

- 1) Finish final paper and group poster
- 2) Invite client to our poster presentation
- 3) Present design Fri, 12/14/01

Difficulties:

- 1) None

Activities:

Gabe Donatell - 7.0 hours - attended meeting with Tim Osswald, worked on possible modifications to bottles, worked on design notebook, worked on group poster, wrote abstract, and helped assemble and proofread final paper.

Christine Koranda - 6.5 hours - attended meeting with plastics expert, drawing design on ironcad, wrote cost analysis and prototype sections for paper, took/edited pictures of prototype.

Mike Kosir - 4.5 hours - attended group meeting, worked on possible modifications to bottles, drawing proposed design, prototype production

David Meister - 10.0 Hours- fabricating prototype, meeting with Dr. Osswald, meeting with Burke O'Neal, visit ME shop (Bill Hagquist) to use silicon rubber to glue the cup to the cap, wrote part of the final design paper, collaborated everyone's section of the paper into a working draft and sent to the poster group for revisions and poster.

Joel Rotroff - 6.0 hours - writing part of the paper, fixing up notebook, and prototype production

Brian Shoet - 4.0 hours - fixing up notebook, worked on group poster, editing paper

Bryan Staerkel - 5.5 hours - class time, prototype construction, prototype construction, writing paper, editing paper

Rebecca Vanderpool - 4.5 hours - modeling bottle in SolidWorks, worked on possible modifications to bottle, wrote for paper